

# Smart Start

AN INNOVATIVE APPROACH TO FAST-TRACK COMMERCIAL ELECTRIC HEAT PUMP WATER HEATERS

## OUR INVESTIGATION BEGINS

### A thorough market scan

Southern California Edison (SCE) conducted an emerging technology assessment of commercial electric heat pump water heater (C-EHPWH) pilots across North America in an effort to identify use case applications that might help push this technology forward in California.

#### Study included:



RESEARCH reports on C-EHPWHs



CATALOG C-EHPWH manufacturers



INTERVIEW program managers

## WHAT WE DISCOVERED

### Most valuable players

While there has been comparatively less research performed with C-EHPWHs than their residential siblings, existing studies consistently prove energy- and money-saving potential across multiple sectors.



FOOD SERVICE



K-12 & HIGHER EDUCATION



LAUNDROMATS



HEALTH & FITNESS



HOSPITALITY



MULTIFAMILY

## LEARNING FROM THOSE WHO'VE GONE BEFORE US

01

### Hydro One, Toronto, Canada



1 YEAR pilot (2015-2017)



MULTI-SECTOR food service, schools, small retail, small manufacturing and multifamily



\$250-\$400 year-over-year energy savings for customers



MODELS TESTED

- GeoSpring Hybrid by General Electric
- Voltex Water Heaters by AO Smith

#### THEY LIKE THEM! THEY REALLY LIKE THEM!

The pilot was incentivized using a direct install rebate and was oversubscribed on the first marketing blast. C-EHPWHs replaced existing electric-resistant water heaters through an approved contractor network. The pilot was then rolled into the province's Save on Energy portfolio of programs.

02

### Bonneville Power Administration (BPA), USA



10+ YEARS of testing (2008-present)



MULTIFAMILY retrofit and new construction for low-, mid-, and high-rises



CURRENTLY TESTING

- Colmac: Air-to-Water HPA Series and Water-to-Water HPW Series
- Sanden CO<sub>2</sub>: Outdoor Unit and Tank Models

#### Next Steps for BPA:

- Consistent sizing and specifications for better plug-and-play
- Operations manual for maintenance staff
- Training resources for contractors and auditors
- Energy savings value for utilities
- Rebate value for end-use customers
- Marketing for all audiences
- Increasing the number of products in the market

#### MOVING FORWARD WITH CO<sub>2</sub> C-EHPWHs

BPA has expressed a preference for CO<sub>2</sub> models based on performance, exterior application options, lower emissions and simpler maintenance. They are currently developing criteria for manufacturers to better meet the needs of property owners and regional utility customers.

MANUFACTURERS CURRENTLY OFFERING C-EHPWHs

- A.O. Smith
- Colmac Waterheat
- Nyle
- Daikin
- Bosch
- Rheem
- Ruud
- Vaughn
- Sanden
- GT Heat Pump
- Itomic
- SunTech
- Mayekawa
- Mitsubishi

## TECHNOLOGY TRANSFER ACROSS REGIONS

### Next steps for Southern California Edison

C-EHPWHs have real potential for providing SCE with another channel for energy savings, demand response, electrification and carbon reduction through both new construction and retrofit, particularly in multifamily and small business. SCE has an opportunity to accelerate C-EHPWH

development and implementation in CA through continued collaboration with leaders like Hydro One, BPA and research partner EPRI. A cross-pollination effort could help support the utility's business goals while meeting the needs of real business owners in California and across North America.

## LEADERS IN CURRENT C-EHPWH RESEARCH

